

Provided are methods for replicating macrophages *in vitro* and cell culture compositions comprising replicating macrophages. Also provided are methods for preparing replicating Kupffer cells from human liver. Further provided are methods for enhancing or extending immune function in an individual suffering from a deficiency relating to a reduced number of functional macrophages in a tissue or organ by administering a therapeutically effective amount of a replicating macrophages obtained by the methods of the invention.